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**PS Kapadiya**  
Bull Mother Farm, Junagadh  
Agricultural University,  
Junagadh, Gujarat, India

**SS Parikh**  
Cattle Breeding Farm, Junagadh  
Agricultural University,  
Junagadh, Gujarat, India

**PM Chauhan**  
Dr. V. M. Jhala Clinical  
Complex, S. D. A. U., Deesa  
Gujarat, India.

**TV Sutaria**  
Dr. V. M. Jhala Clinical  
Complex, S. D. A. U., Deesa  
Gujarat, India.

**HC Nakhasi**  
Dr. V. M. Jhala Clinical  
Complex, S. D. A. U., Deesa  
Gujarat, India.

**Correspondence**  
**PS Kapadiya**  
Bull Mother Farm, Junagadh  
Agricultural University,  
Junagadh, Gujarat, India

## Management of hydroallantois in a Jaffrabadi buffalo: A case report

**PS Kapadiya, SS Parikh, PM Chauhan, TV Sutaria and HC Nakhasi**

### Abstract

A rare case of hydroallantois in a Jaffrabadi buffalo of second parity was diagnosed on the basis of bilateral abdominal distension followed by per-rectal and per-vaginal examination. The buffalo was successfully treated through induction of parturition; allantocentesis for removal of excessive fluid with rubber pipe as well as medicinal treatment along with fluid therapy resulting in uneventfully recovery with sustaining reproductive efficacy.

**Keywords:** Hydroallantois, Jaffrabadi buffalo, induced parturition, reproductive efficacy.

### Introduction

Hydrallantois is one of the gestational disorders, results due to increased production of a fluid closely resembling blood plasma within the allantoic sac. Hydrallantois affects both bovine foetus as well as the fetal membranes. This condition is commonly characterized by progressive bilateral abdominal distension owing to rapid accumulation of fluid in allantoic sac of the pregnant female and occurs during the third trimester of pregnancy (Roberts, 1971; Peek, 1997 and Manokaran *et al.*, 2016). The physiopathology of hydrallantois is related to the reduction of placental vascularization resulting in metabolic changes in the placental tissue and fetal membranes thereby accumulating fetal fluids. Additionally fetal malformation, fetal hepatic or renal disorders (e.g., hydronephrosis) and umbilical cord torsion also cause hydrallantois (Landim-Alvarenga, 2006 and Jackson, 2006). In dairy cattle, hydrallantois is more common in last phase of third trimester and less so in buffaloes and heifers (Srinivas and Sreenu, 2006). Hence, present paper reports about a rare case of hydroallantois and its successful therapeutic management in a buffalo.

### Case History

A pluriparous, eight month pregnant Jaffrabadi buffalo was ill since last 15 days with bilateral progressive distention of abdomen and gradually decrease the food and water intake. The cow was initially treated symptomatically for bloat and indigestion for three times by different field veterinarians but efforts were futile.

### Clinical observations

The buffalo was dull and depressed with bilateral symmetric abdominal distension and respiratory distress during physical examination. She was able to stand, but walked with difficulty. The general clinical examination of the animal showed normal body temperature (101.2°F), respiration rate (36/min.) and heart rate (79/min.). Per-vaginal examination revealed closed external os of cervix. Further, per-rectal examination revealed distended and fluid filled uterus with a difficulty in palpating the fetus. Based on the history and clinical examinations, it was diagnosed as case of hydrallantois.

### Obstetrical Management

Parturition was induced first by using inj. Dinoprost tromethamine (Lutalyse®, Pfizer Animal Health, 25 mg, intramuscular) and inj. Dexamethasone sodium phosphate (Dexasone, Zydus Animal Health Limited, 60 mg, intramuscular). Supportive treatment was also given for prevention of secondary infection and pain management. After 48 hrs of induction, animal showed sign of parturition and tenesmus but failed to expel water bag. Then the buffalo was examined per vaginally and partially dilated cervix was felt and also tense water bag was palpated. For removal of allantoic fluid, hand was inserted in vagina and protruded part of allantoic sac was ruptured to drain fluid from gravid uterus. Initially, 5 to 10 lit fluid was drained out spontaneously. But later due to pelvic brim obstacle and deep abdominal distention

of fully fluid filled gravid uterus, residual fluid remained inside. Keeping hand in uterus along with rubber pipe, approximate length of 2 meter and 1 inch diameter, remaining allantoic fluid was drained out from the uterus (Figure 1). About 130 liters of allantoic fluid was drained out. Rubber pipe helps in slowly drainage of allantoic fluid from uterus. The drained allantoic fluid was watery and amber in colour. After complete removal of allantoic fluid, foetus was palpated and delivered by traction. The foetus was normal and fully developed without any physical defects. The remaining placenta was removed manually.

The animal was medicated 5 litres of each 5% dextrose normal saline and normal saline solution intravenously. Injection of ceftiofur sodium 1 gm (Xnel, Pfizer) and injection of dexamethasone 35mg (Dexasone, Zydus Animal Health Limited) were given intravenously, whereas, injection of Meloxicam 20 ml (Melonex, Intas Neovet) was administered intramuscularly. Bolus of Furazolidone and urea (Furea, Pfizer, 4 no.) was placed in uterus. The same treatment was continued for next 3 days except inj Dexamethasone. Inj. Metronidazole and Povidone 60 ml (Metricare, Zydus Animal Health Limited) intrauterine also given for three consequence days to prevent uterine infection. The buffalo recovered uneventfully. After 73 days of treatment, Buffalo showed signs of heat and artificially inseminated. Pregnancy diagnosis was performed at days 90 post breeding revealed confirmed pregnancy.

### Discussion

Hydrallantois is rarely diagnosed gestational disorder and usually affects cows (Rangasamy *et al.*, 2013; Manokaran *et al.*, 2016 and Resum *et al.*, 2016), buffalo (Louis, 1967; Kumar *et al.*, 2012 and Pandey *et al.*, 2014), goat (Tripathi and Mehta, 2015 and Alagar *et al.*, 2017), sheep (Loi *et al.*, 2006 and Peiro *et al.*, 2007), bitch (Feliciano *et al.*, 2013) and also mares (Christensen *et al.*, 2006). It is seen mostly during 8-9 months of pregnancy of cattle and buffalo (Roberts, 1971). Similarly, in the present case the condition was seen in 8 months of pregnancy.

The cause of hydrallantois is not well definite. Hydroallantois may results due to dysfunctional maternal caruncles owing to uterine diseases leading to enlargement and edematous condition of placentomes with consequences of adventitious placenta (Drost, 2007). Such adventitious placentae are even formed owing to congenital lack of maternal caruncles (Roberts, 1971). The treatment protocol of hydrallantois depends on the degree of severity of the condition and prognosis. Excessive fluid accumulation in hydrallantois condition results abdominal distension and sometimes loss of condition and recumbency with consequences of fatality to dam (Noakes *et al.*, 2009). If there is recumbency then advised to slaughter the cows where it is legally allowed (Roberts, 1971) but in non-recumbent condition there may be termination of pregnancy or removal of fetus by cesarean section (Noakes *et al.*, 2009). Further, factors like increased membrane permeability and decreased active transport of sodium across the chorioallantoic membrane, hormonal imbalances and fetal renal disease are also responsible for hydrallantois (Morin *et al.*, 1994). Consumption estrogenic legumes or fodder causing hypothyroidism also increase susceptibility to hydrallantois (Mobini *et al.*, 2002). In hydrallantois no fetal abnormality has been reported and placental edema is the only lesion may be associated with alteration of sodium channel at the cellular level (Jackson, 2006).

Sudden accumulation of allantoic fluid may produce excess pressure on diaphragm leading to respiratory distress as observed in the present case. Further, there is dehydration, sunken eyes, dullness and depression owing to shifting of interstitial fluid from tissue or cell to allantoic cavity (Arthur *et al.*, 1989). Incomplete cervical dilatation as observed in the present case along with uterine inertia and lack of strong abdominal contractions might be associated with abnormal parturition (Barter, 1986). In this study, the Jaffrabadi buffalo even after induction failed to deliver the fetus.

In hydrallantois case, different treatment protocols like use of PGF2 $\alpha$  preparation, dexamethasone and estrogen preparation have been followed by veterinarians for the induction of parturition in cattle and buffaloes (Sharp *et al.*, 1978 and Kumar *et al.*, 2012). However, when the response of animals to such protocols fails, the caesarean section is preferred to remove the fetus (Rangasamy *et al.*, 2013). Generally, supportive fluid therapy is recommended with slow and continuous removal of the excessive allantoic fluid to avoid hypovolemic shock due to sudden expulsion of allantoic fluid during pregnancy termination. Therefore, allantoic fluid was drained intermittently with intra venous medication. Postoperative complications like retained placenta owing to reduction of uterine contraction and septic metritis are common (Roberts, 1971). Prognosis of the case indicated that early diagnosis followed by managerial interventions is very important for hydroallantois cases.

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**Fig 1:** Removal of allantoic fluid through rubber pipe

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